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PATENT APPLICATION

Listing of Claims:

1. (Currently amended) A microcapsule consisting of:
a plurality of internal, immiscible liquid phases;
~~enclosed within a~~ flexible polymer outer membrane encapsulating the liquid phases, the
polymer outer membrane having a melting temperature, wherein a polymer of the polymer outer
~~membrane does not extend from the polymer outer membrane into the microcapsule such that the~~
liquid phases are not dispersed by the polymer; and
 one or more energy absorbing trigger particles ~~components~~ selected from the group
 consisting of amorphous carbon, graphite, aluminum powder, and metals, acetylene black,
~~sodium amyl alcohol, sorbitan monooleate, 2% sorbitan monooleate/20 moles ethylene oxide, and~~
paraffin oil, contained in an internal liquid phase in contact with the polymer outer membrane,
wherein the one or more energy absorbing trigger particles are co-encapsulated with the plurality
of internal, immiscible liquid phases by the flexible polymer outer membrane, wherein the one or
more energy absorbing trigger particles sediment in the internal liquid phase in contact with the
polymer outer membrane, wherein at least one of the one or more energy absorbing trigger
particles are in contact with the polymer outer membrane, wherein said one or more energy
~~absorbing trigger particles components~~ have a higher specific absorption rate for magnetic,
 radiofrequency, microwave, or ultrasound energy than the specific absorption rate of the polymer
 outer membrane, and wherein the temperature of said one or more energy absorbing trigger
~~particles components~~ is increased by absorbing said energy to melt at least a portion of the
 polymer outer membrane.

2.-5. (Canceled)

6. (Previously Presented) The microcapsule of claim 1, wherein said polymer outer membrane
 comprises glycerol monostearate, glycerol monooleate, glycerol monolaurate, glycerol dioleate,
 glyccrol distearate, cholesterol, stigmasterol, phytosterol, campesterol, lecithins, polyvinyl
 pyrrolidone, polyvinyl alcohols, hydrocolloids, polyethylene glycol 400-20000 daltons, dextran

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1000-100000 daltons, polyvinylpyrrolidone, polyvinyl alcohols or combinations thereof.

7.-8. (Canceled)

9. (Previously Presented) The microcapsule of claim 75, wherein said drug or drug precursor is an anti-cancer drug or anti-cancer drug precursor.

10. (Original) The microcapsule of claim 9, wherein said anti-cancer drug is cis-platin, doxorubicin, daunorubicin, diaziquone, paclitaxel, aziridinybenzoquinone, muramyltripeptide, 5-fluorouracil, cyclophosphamide, melphalan, dacarbazine, methotrexate, cytarabine, azaribine, mercaptopurine, thioguanine, vinblastine, vincristine, bleomycin, prednisone, ethinyl estradiol, diethylstilbestrol, tamoxifen, testosterone propionate, or fluoxymesterone.

11. (Previously presented) The microcapsule of claim 75, wherein said drug or drug precursor is an anesthetic.

12. (Original) The microcapsule of claim 11, wherein said anesthetic is cocaine, procaine, or lidocaine.

13. (Previously presented) The microcapsule of claim 75, wherein said drug or drug precursor is a systemic antibiotic.

14. (Original) The microcapsule of claim 13, wherein said antibiotic is a penicillin, vancomycin, a cephalosporin, erythromycin, ampicillin, amoxicillin, chloramphenicol, rifampicin, gentamicin, sulfanilamide, sulfadiazine, sulfamethoxazole, sulfisoxazole, sulfacetamide, para-aminobenzoic acid, streptomycin, or isoniazid.

15. (Previously presented) The microcapsule of claim 75, wherein said drug or drug precursor is a systemic antifungal.

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16. (Original) The microcapsule of claim 15, wherein said antifungal is nystatin, or amphotericin B, or griseofulvin.
17. (Previously presented) The microcapsule of claim 75, wherein said drug or drug precursor is a systemic antiviral.
18. (Original) The microcapsule of claim 17, wherein said antiviral is idoxuridine, iododeoxuridine, riboviran, or amantidine.
19. (Previously presented) The microcapsule of claim 75, wherein said drug or drug precursor is an anti-parasitic.
20. (Previously presented) The microcapsule of claim 75, wherein said drug or drug precursor is an anti-inflammatory.
21. (Previously Presented) The microcapsule of claim 75, wherein the drug or drug precursor is a hormone, a steroid, hydrocortisone, dexamethasone, a systemic quinolone, an aminoglycoside, an antidote, an anti-cholinesterase, a metal poisoning antidote, a cytotoxic agent, an immunomodulator, a cytokine, an interleukin, an alpha-antitrypsin, a bone metabolism regulator, a hypercalcemic agent, a cardiovascular agent, a beta blocker, a cerebral vasodilator, a cerebral metabolic enhancer, a colony stimulating factor, a granulocyte-colony stimulating factor, a granulocyte macrophage-colony stimulating factor, a vasopressor, a local diabetic agent, a CT scan enhancer, an angiocardiology agent, an adenosine deaminase deficiency agent, a gonadotropin inhibitor, an adrenal cortical steroid inhibitor, a gonadotropin releasing hormone stimulant, a urofollitropin, a muscle relaxant, a neuromuscular blocking agent, a prostaglandin analog, a prostaglandin, a prostaglandin inhibitor, a respiratory therapy agent, an anticholinergic, a beta adrenergic stimulator, a metoclopramide, tetrahydrocannabinol or a sympathomimetic.

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22. (Previously presented) The microcapsule of claim 75, wherein said drug or drug precursor is a thrombolytic agent.
23. (Original) The microcapsule of claim 22, wherein said thrombolytic agent is urokinase (uPA), tissue plasminogen activator (tPA) or streptokinase.
24. (Previously Presented) The microcapsule of claim 72, wherein the one or more magnetic particles comprise oxides of iron, nickel and zinc.
25. (Previously Presented) The microcapsule of claim 72, wherein the one or more magnetic particles comprise about 66 wt % Fe_2O_3 , about 9 wt % NiO , and about 25 wt % ZnO .
26. (Previously presented) The microcapsule of claim 72, wherein the one or more magnetic particles comprise Fe_3O_4 , oxides of copper, gold, silver or combinations thereof.
27. (Currently amended) The microcapsule of claim 72, wherein the ~~one or more magnetic particles comprise a ceramic~~ coating is a ceramic.
28. (Currently amended) The microcapsule of claim 72, wherein the ~~one or more magnetic particles comprise~~ coating is a methacrylate, alginate, dextran, polyacrylate, or polyvinyl pyrrolidone coating.
29. (Previously Presented) The microcapsule of claim 72, wherein the one or more magnetic particles have a Curie temperature of from about 41°C to about 95°C .
30. (Original) The microcapsule of claim 1, wherein the microcapsule has a diameter of from about 1 to about 500 microns.
31. (Original) The microcapsule of claim 1, wherein the microcapsule has a diameter of from

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about 300 to about 500 microns.

32. (Original) The microcapsule of claim 1, wherein the microcapsule has a diameter of from about 50 to about 300 microns.

33. (Original) The microcapsule of claim 1, wherein the microcapsule has a diameter of from about 30 to about 50 microns.

34. (Original) The microcapsule of claim 1, wherein the microcapsule has a diameter of from about 20 to about 30 microns.

35. (Original) The microcapsule of claim 1, wherein the microcapsule has a diameter of from about 1 to about 20 microns.

36. (Canceled)

37. (Previously presented) The microcapsule of claim 77, wherein the radiocontrast media is a halogenated oil.

38. (Previously presented) The microcapsule of claim 37 wherein the halogenated oil is poppy seed oil, cotton seed oil, soybean oil, safflower oil, corn oil, sunflower seed oil, sesame seed oil, or canola oil.

39. (Original) The microcapsule of claim 37, wherein the radiocontrast media is iodinated poppy seed oil.

40. (Original) The microcapsule of claim 1, contained in a pharmaceutically acceptable solution.

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41. (Currently amended) A microcapsule composition consisting of:

~~microcapsules, wherein said microcapsules consist of two or more internal, immiscible liquid phases;~~

~~enclosed within a flexible polymer outer membrane encapsulating the two or more internal, immiscible liquid phases, the polymer outer membrane having a melting temperature, and wherein a polymer of the polymer outer membrane does not extend from the polymer outer membrane into the microcapsules such that the two or more liquid phases are not dispersed by the polymer; and~~

one or more solid magnetic particles selected from the group consisting of oxides of iron, nickel, copper, gold, silver, and zinc, in an internal liquid phase in contact with the polymer outer membrane, wherein the one or more magnetic particles have a Curie point higher than the melting temperature of the polymer membrane, wherein a first portion of said microcapsules contain magnetic particles with a first Curie point, wherein a second portion of said microcapsules contain magnetic particles with a second Curie point, and further wherein the first Curie point is different than said second Curie point; and

a coating surrounding at least one of the one or more magnetic particles, the coating selected from the group consisting of ceramics, metacrylates, alginates, dextran, polyacrylates, and polyvinyl pyrrolidine.

42. (Canceled)

43. (Previously presented) The composition of claim 78, wherein said first portion contains a different drug than said second portion.

44. (Withdrawn) A method of controlling the release of a drug consisting of:

providing a drug delivery solution consisting of microcapsules consisting of internal, immiscible liquid phases enclosed within a polymer outer membrane having a melting temperature, and one or more energy absorbing components selected from the group consisting of amorphous carbon, graphite, aluminum powder, acetylene black, sodium amyl alcohol,

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sorbitan monooleate, 2% sorbitan monooleate/20 moles ethylene oxide, and paraffin oil, in an internal liquid phase in contact with the outer membrane, wherein the energy absorbing component has a higher specific absorption rate for electromagnetic, radiofrequency, microwave, or ultrasound energy than the specific absorption rate of the polymer membrane, and a drug contained in at least one of the internal liquid phases;

administering the drug delivery solution to a subject; and

exposing the microcapsule to an energy source, effective to heat the internal component and to melt at least a portion of the polymer outer membrane and to release the drug.

45.-48. (Canceled)

49. (Withdrawn) The method of claim 79, wherein the electromagnetic field is an electromagnetic field with a frequency of from about 20 to about 500 KHz.

50. (Withdrawn) The method of claim 79, wherein the electromagnetic field is an electromagnetic field with a frequency of from about 85 to about 100 KHz.

51.-54. (Canceled)

55. (Withdrawn) The method of claim 81, wherein the microcapsules are administered to a subject and detected at a target site by radiography, prior to heating the internal component.

56. (Withdrawn) The method of claim 44, wherein the microcapsules are administered to a subject intraarterially, intravenously, intraperitoneally, directly into a tissue, or directly into a tumor.

57-68. (Canceled)

69. (Currently amended) A composition consisting of:

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at least two groups of microcapsules, wherein the microcapsules of said at least two groups of microcapsules consist of:

one or more internal liquid phases;

~~enclosed within a flexible polymer outer membrane encapsulating the one or more internal liquid phases, the polymer outer membrane having a melting temperature, and wherein a polymer of the polymer outer membrane does not extend from the polymer outer membrane into the microcapsules such that the one or more internal liquid phases are not dispersed by the polymer, and~~

one or more solid magnetic particles in one of the one or more internal liquid phases, wherein the one of the one or more internal liquid phases is in contact with the polymer outer membrane;[.] and

a coating surrounding at least one of the one or more magnetic particles, the coating selected from the group consisting of ceramics, metacrylates, alginates, dextran, polyacrylates, and polyvinyl pyrrolidone,

~~wherein the microcapsules of a first group of said the microcapsules have a first polymer outer membrane with a different melting point than a second polymer outer membrane of a microcapsules of a second group of said the microcapsules, and~~
wherein both the first and second melting points are lower than the Curie point of the one or more magnetic particles.

70.-71. (Canceled)

72. (Currently amended) A microcapsule consisting of:

a plurality of internal, immiscible liquid phases;

~~enclosed within a flexible polymer outer membrane encapsulating the liquid phases, the liquid phases having a melting temperature; , wherein a polymer of the polymer outer membrane does not extend from the polymer outer membrane into the microcapsule such that the liquid phases are not dispersed by the polymer, and~~

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one or more solid magnetic particles that are capable of becoming magnetized when a magnetic field is applied to said one or more magnetic particles, said one or more magnetic particles in one of the internal, immiscible liquid phases in contact with the polymer outer membrane, said one or more magnetic particles having a higher specific absorption rate for magnetic energy than the specific absorption rate of the polymer outer membrane, wherein the temperature of one or more magnetic particles is increased by absorbing said energy to melt at least a portion of the polymer outer membrane; and

a coating surrounding at least one of the one or more magnetic particles, the coating selected from the group consisting of ceramics, metacrylates, alginates, dextran, polyacrylates, and polyvinyl pyrrolidone.

73. (Currently amended) A microcapsule consisting of:

one or more internal, immiscible liquid phases;

enclosed within a flexible polymer outer membrane encapsulating the liquid phases, the polymer outer membrane having a melting temperature; wherein a polymer of the polymer outer membrane does not extend from the polymer outer membrane into the microcapsule such that the liquid phases are not dispersed by the polymer, and

a spheroid of one or more energy absorbing trigger particles components selected from the group consisting of amorphous carbon, graphite, and aluminum powder, acetylene black, sodium amyl alcohol, sorbitan monooleate, 2% sorbitan monooleate/20 moles ethylene oxide, and paraffin oil, in an internal liquid phase in contact with the polymer outer membrane, wherein the one or more energy absorbing trigger particles sediment in the internal liquid phase in contact with the polymer outer membrane, and wherein at least one of the one or more energy absorbing trigger particles is in contact with the polymer outer membrane, wherein said spheroid has a higher specific absorption rate for ultrasound energy than the specific absorption rate of the polymer outer membrane, and wherein the temperature of said spheroid is increased by absorbing said energy to melt at least a portion of the polymer outer membrane.

74. (Currently amended) A microcapsule consisting of:

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one or more internal, immiscible liquid phases, said liquid phases consisting of at least one internal aqueous phase and at least one internal hydrocarbon phase;[.]

~~enclosed within a flexible polymer outer membrane encapsulating the liquid phases, the polymer outer membrane having a melting temperature; , wherein a polymer of the polymer outer membrane does not extend from the polymer outer membrane into the microcapsule such that the liquid phases are not dispersed by the polymer, and~~

one or more energy absorbing trigger particles ~~components~~ selected from the group consisting of amorphous carbon, graphite, and aluminum powder, ~~acetylene black, sodium amyl alcohol, sorbitan monooleate, 2% sorbitan monooleate/20 moles ethylene oxide, and paraffin oil,~~ in an internal liquid phase in contact with the polymer outer membrane, wherein the one or more energy absorbing trigger particles sediment in the internal liquid phase in contact with the polymer outer membrane, and wherein at least one of the one or more energy absorbing trigger particles is in contact with the polymer outer membrane, wherein said one or more energy absorbing trigger particles ~~components~~ have a higher specific absorption rate for magnetic, radiofrequency, microwave, or ultrasound energy than the specific absorption rate of the polymer membrane, and wherein the temperature of said one or more energy absorbing components is increased by absorbing said energy to melt at least a portion of the polymer outer membrane.

75. (Currently amended) A microcapsule consisting of:

one or more internal, immiscible liquid phases;

~~enclosed within a flexible polymer outer membrane encapsulating the liquid phases, the polymer outer membrane having a melting temperature; , wherein a polymer of the polymer outer membrane does not extend from the polymer outer membrane into the microcapsule such that the liquid phases are not dispersed by the polymer, and~~

one or more energy absorbing trigger particles ~~components~~ selected from the group consisting of amorphous carbon, graphite, and aluminum powder, in an internal liquid phase in contact with the outer membrane;~~acetylene black, sodium amyl alcohol, sorbitan monooleate, 2% sorbitan monooleate/20 moles ethylene oxide, and paraffin oil, and~~

a drug or drug precursor[.] in an the internal liquid phase in contact with the outer

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membrane,

wherein the one or more energy absorbing trigger particles sediment in the internal liquid phase in contact with the polymer outer membrane,

wherein at least one of the one or more energy absorbing trigger particles is in contact with the polymer outer membrane,

wherein said the one or more energy absorbing trigger particles components have a higher specific absorption rate for magnetic, radiofrequency, microwave, or ultrasound energy than the specific absorption rate of the polymer outer membrane, and

wherein the temperature of said the one or more energy absorbing trigger particles components is increased by absorbing said energy to melt at least a portion of the polymer outer membrane.

76. (Currently amended) A microcapsule consisting of:

one or more internal, immiscible liquid phases;

enclosed within a flexible polymer outer membrane encapsulating the liquid phase, the polymer outer membrane having a melting temperature; ~~wherein a polymer of the polymer outer membrane does not extend from the polymer outer membrane into the microcapsule such that the liquid phases are not dispersed by the polymer, and~~

one or more energy absorbing trigger particles components selected from the group consisting of amorphous carbon, graphite, and aluminum powder, contained in a first internal liquid phase; acetylene black, sodium amyl alcohol, sorbitan monooleate, 2% sorbitan monooleate/20 moles ethylene oxide, and paraffin oil,

a drug precursor in a the first internal liquid phase; and

an activator of said drug precursor in a second internal liquid phase immiscible with the first internal liquid phase,

wherein ~~one of said the first~~ the first internal liquid phases is in contact with the outer membrane,

wherein the one or more energy absorbing trigger particles sediment in the first internal liquid

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phase in contact with the polymer outer membrane,
wherein at least one of the one or more energy absorbing trigger particles is in contact with the
polymer outer membrane,

wherein said one or more energy absorbing trigger particles ~~components~~ have a higher specific absorption rate for magnetic, radiofrequency, microwave, or ultrasound energy than the specific absorption rate of the polymer outer membrane, and

wherein the temperature of said one or more energy absorbing trigger particles ~~components~~ is increased by absorbing said energy to melt at least a portion of the polymer outer membrane.

77. (Currently amended) A microcapsule consisting of:

one or more internal, immiscible liquid phases;

~~enclosed within a~~ flexible polymer outer membrane encapsulating the liquid phases, the
polymer outer membrane having a melting temperature; ~~wherein a polymer of the polymer~~
~~outer membrane does not extend from the polymer outer membrane into the microcapsule such~~
~~that the liquid phases are not dispersed by the polymer, and~~

one or more energy absorbing trigger particles ~~components~~ selected from the group consisting of amorphous carbon, graphite, and aluminum powder, acetylene black, sodium amy! alcohol, sorbitan monooleate, 2% sorbitan monooleate/20 moles ethylene oxide, and paraffin oil, and containing a radiocontrast media, in an internal liquid phase in contact with the polymer outer membrane, wherein the one or more energy absorbing trigger particles sediment in the
internal liquid phase in contact with the polymer outer membrane, and wherein at least one of the
one or more energy absorbing trigger particles is in contact with the polymer outer membrane,
 wherein said one or more energy absorbing trigger particles ~~components~~ have a higher specific absorption rate for magnetic, radiofrequency, microwave, or ultrasound energy than the specific absorption rate of the polymer outer membrane, and wherein the temperature of said one or more energy absorbing trigger particles ~~components~~ is increased by absorbing said energy to melt at least a portion of the polymer outer membrane.

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78. (Currently amended) A microcapsule composition, consisting of:

~~microcapsules, wherein said microcapsules consist of two or more internal, immiscible liquid phases;~~

~~enclosed within a flexible polymer outer membrane encapsulating the liquid phases, the polymer outer membrane having a melting temperature, and wherein a polymer of the polymer outer membrane does not extend from the polymer outer membrane into the microcapsules such that the two or more liquid phases are not dispersed by the polymer; and~~

one or more solid magnetic particles selected from the group consisting of oxides of iron, nickel, copper, gold, silver, and zinc, in an internal liquid phase in contact with the polymer outer membrane, wherein the one or more magnetic particles have a Curie point higher than the melting temperature of the polymer outer membrane, wherein a first portion of said microcapsules contain magnetic particles with a first Curie point, wherein a second portion of said microcapsules contain magnetic particles with a second Curie point, wherein the first Curie point is different than said second Curie point, and wherein at least certain of the microcapsules contain a drug in said first or second portion or both; and

a coating surrounding at least one of the one or more magnetic particles, the coating selected from the group consisting of ceramics, metacrylates, alginates, dextran, polyacrylates, and polyvinyl pyrrolidone.

79. (Withdrawn) A method of controlling the release of a drug consisting of:

providing a drug delivery solution consisting of microcapsules consisting of internal, immiscible liquid phases enclosed within a polymer outer membrane having a melting temperature, and one or more energy absorbing components in an internal liquid phase in contact with the outer membrane, wherein the energy absorbing component is a magnetic particle and the energy is a magnetic field, wherein the energy absorbing component has a higher specific absorption rate for electromagnetic energy than the specific absorption rate of the polymer membrane, and a drug contained in at least one of the internal liquid phases;

administering the drug delivery solution to a subject; and

exposing the microcapsule to an energy source, effective to heat the internal component

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and to melt at least a portion of the polymer outer membrane and to release the drug.

80. (Withdrawn) A method of controlling the release of a drug consisting of:

providing a drug delivery solution consisting of microcapsules consisting of internal, immiscible liquid phases enclosed within a polymer outer membrane having a melting temperature, and one or more energy absorbing components in an internal liquid phase in contact with the outer membrane, wherein the energy absorbing component consists of a spheroid within the microcapsule, and wherein the energy is ultrasound, wherein the energy absorbing component has a higher specific absorption rate for ultrasound energy than the specific absorption rate of the polymer membrane, and a drug contained in at least one of the internal liquid phases;

administering the drug delivery solution to a subject; and

exposing the microcapsule to an energy source, effective to heat the internal component and to melt at least a portion of the polymer outer membrane and to release the drug.

81. (Withdrawn) A method of controlling the release of a drug consisting of:

providing a drug delivery solution consisting of microcapsules consisting of internal, immiscible liquid phases enclosed within a polymer outer membrane having a melting temperature, and one or more energy absorbing components in an internal liquid phase in contact with the outer membrane, wherein the energy absorbing component is a magnetic particle and the energy is a magnetic field, wherein the energy absorbing component has a higher specific absorption rate for electromagnetic energy than the specific absorption rate of the polymer membrane, and a drug contained in at least one of the internal liquid phases, wherein the microcapsules contain a drug precursor in a first internal liquid phase and an activator of the drug precursor in a second internal liquid phase immiscible with the first internal liquid phase;

exposing the microcapsules to an energy source effective to mix the immiscible internal liquid phases and increase the kinetics of activation of the drug precursor prior to heating the magnetic particles;

administering the drug delivery solution to a subject; and

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exposing the microcapsule to an energy source, effective to heat the internal component and to melt at least a portion of the polymer outer membrane and to release the drug.

82. (Withdrawn) A method of controlling the release of a drug consisting of:

providing a drug delivery solution consisting of microcapsules consisting of internal, immiscible liquid phases enclosed within a polymer outer membrane having a melting temperature, and one or more energy absorbing components selected from the group consisting of amorphous carbon, graphite, aluminum powder, acetylene black, sodium amyl alcohol, sorbitan monoleate, 2% sorbitan monooleate/20 moles ethylene oxide, and paraffin oil, in an internal liquid phase in contact with the outer membrane, wherein the energy absorbing component has a higher specific absorption rate for electromagnetic, radiofrequency, microwave, or ultrasound energy than the specific absorption rate of the polymer membrane, and a drug contained in at least one of the internal liquid phases, and wherein the microcapsules contain a radiocontrast medium;

wherein the microcapsules are administered to a subject intraarterially, intravenously, intraperitoneally, directly into a tissue, or directly into a tumor;

administering the drug delivery solution to a subject; and

detecting said microcapsules at a target site by radiography, prior to heating the internal component;

exposing the microcapsule to an energy source, effective to heat the internal component and to melt at least a portion of the polymer outer membrane and to release the drug.

83. (Currently amended) A composition, consisting of:

at least two groups of microcapsules, wherein the microcapsules of said at least two groups of microcapsules consist of:

one or more internal liquid phases;

~~enclosed within a flexible polymer outer membrane encapsulating the one or more liquid phases, the polymer outer membrane having a melting temperature, and wherein a polymer of the polymer outer membrane does not extend from the polymer outer~~

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~~membrane into the microcapsules such that the one or more internal liquid phases are not dispersed by the polymer; and~~

one or more solid magnetic particles in an internal liquid phase in contact with the polymer outer membrane; and

a coating surrounding at least one of the one or more magnetic particles, the coating selected from the group consisting of ceramics, metacrylates, alginates, dextran, polyacrylates, and polyvinyl pyrrolidone,

wherein the microcapsules of a first group of said microcapsules have a polymer outer membrane with a different melting point than the microcapsules of a second group of said microcapsules,

wherein both the first and second melting points are lower than the Curie point of the one or more magnetic particles, and

wherein said microcapsules contain a drug in a least one of said one or more internal liquid phases.

84. (Currently amended) A composition, consisting of:

at least two groups of microcapsules, wherein the microcapsules of said at least two groups of microcapsules consist of:

one or more internal liquid phases;

~~enclosed within a flexible polymer outer membrane encapsulating the liquid phases, the polymer outer membrane having a melting temperature, and wherein a polymer of the polymer outer membrane does not extend from the polymer outer membrane into the microcapsules such that the one or more internal liquid phases are not dispersed by the polymer; and~~

one or more solid magnetic particles in an internal liquid phase in contact with the polymer outer membrane; and

a coating surrounding at least one of the one or more magnetic particles, the coating selected from the group consisting of ceramics, metacrylates, alginates, dextran,

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polyacrylates, and polyvinyl pyrrolidine,

wherein the microcapsules of a first group of said microcapsules have a polymer outer membrane with a different melting point than the microcapsules of a second group of said microcapsules,

wherein both the first and second melting points are lower than the Curie point of the magnetic particles, and

wherein said first group of microcapsules contains a different drug than said second group of microcapsules.

85. (Currently amended) A microcapsule consisting of:

two to four internal, immiscible liquid phases;

~~enclosed within a flexible polymer outer membrane encapsulating the liquid phases, the polymer outer membrane having a melting temperature[.]; wherein a polymer of the polymer outer membrane does not extend from the polymer outer membrane into the microcapsule such that the two to four liquid phases are not dispersed by the polymer,~~

an energy absorbing trigger particle component selected from the group consisting of amorphous carbon, graphite, and aluminum powder, in an internal liquid phase in contact with the polymer outer membrane ~~acetylene black, sodium amyl alcohol, sorbitan monooleate, 2% sorbitan monooleate/20 moles ethylene oxide, and paraffin oil[.];~~ and a drug or drug precursor, in an internal liquid phase not in contact with the polymer outer membrane,

wherein the energy absorbing trigger particle sediments in the internal liquid phase in contact with the polymer outer membrane,

wherein the energy absorbing trigger particle is in contact with the polymer outer membrane, wherein said energy absorbing trigger particle component has a higher specific absorption rate for magnetic, radiofrequency, microwave, or ultrasound energy than the specific absorption rate of the polymer outer membrane, and wherein the temperature of said energy absorbing trigger particle component is increased by

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absorbing said energy to melt at least a portion of the polymer outer membrane.

86. (Currently amended) A microcapsule consisting of:

two to four internal, immiscible liquid phases;

~~enclosed within a flexible polymer outer membrane encapsulating the liquid phases, the polymer outer membrane having a melting temperature; wherein a polymer of the polymer outer membrane does not extend from the polymer outer membrane into the microcapsule such that the two to four liquid phases are not dispersed by the polymer, and~~

an energy absorbing trigger particle component selected from the group consisting of amorphous carbon, graphite, and aluminum powder, in a second internal liquid phase; acetylene black, sodium amyl alcohol, sorbitan monooleate, 2% sorbitan monooleate/20 moles ethylene oxide, and paraffin oil,

a drug precursor in a first internal liquid phase; and

an activator of said drug precursor in a the second internal liquid phase immiscible with the first internal liquid phase,

~~wherein one of said the second internal liquid phases is in contact with the outer membrane,~~

wherein the energy absorbing trigger particle sediment in the second internal liquid phase in contact with the polymer outer membrane,

wherein the energy absorbing trigger particle is in contact with the polymer outer membrane,

wherein said energy absorbing trigger particle component has a higher specific absorption rate for magnetic, radiofrequency, microwave, or ultrasound energy than the specific absorption rate of the polymer outer membrane, and

wherein the temperature of said energy absorbing trigger particle component is increased by absorbing said energy to melt at least a portion of the polymer outer membrane.

87. (Currently amended) A composition consisting of microcapsules, wherein said microcapsules consist of:

two to four internal, immiscible liquid phases;

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~~enclosed within a flexible polymer outer membrane encapsulating the liquid phases, the polymer outer membrane having a melting temperature; ~~wherein a polymer of the polymer outer membrane does not extend from the polymer outer membrane into the microcapsules such that the two to four liquid phases are not dispersed by the polymer, and~~~~

a solid magnetic particle selected from the group consisting of oxides of iron, nickel, copper, gold, silver, and zinc, in an internal liquid phase in contact with the polymer outer membrane, wherein the magnetic particle has a Curie point higher than the melting temperature of the polymer membrane, wherein a first portion of said microcapsules contain magnetic particles with a first Curie point, wherein a second portion of said microcapsules contain magnetic particles with a second Curie point, wherein the first Curie point is different than said second Curie point, and wherein at least certain of the microcapsules contain a drug in said first or second portion or both; and

a coating surrounding at least one of the one or more magnetic particles, the coating selected from the group consisting of ceramics, methacrylates, alginates, dextran, polyacrylates, and polyvinyl pyrrolidone.

88. (Withdrawn) A method of controlling the release of a drug consisting of:

providing a drug delivery solution consisting of microcapsules consisting of two to four internal, immiscible liquid phases enclosed within a polymer outer membrane having a melting temperature, and an energy absorbing component selected from the group consisting of amorphous carbon, graphite, aluminum powder, acetylene black, sodium amyl alcohol, sorbitan monoleate, 2% sorbitan monooleate/20 moles ethylene oxide, and paraffin oil, in an internal liquid phase in contact with the outer membrane, wherein the energy absorbing component has a higher specific absorption rate for electromagnetic, radiofrequency, microwave, or ultrasound energy than the specific absorption rate of the polymer membrane, and a drug contained in at least one of the internal liquid phases;

administering the drug delivery solution to a subject; and

exposing the microcapsule to an energy source, effective to heat the energy absorbing component and to melt at least a portion of the polymer outer membrane and to release the drug.

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89. (Withdrawn) A method of controlling the release of a drug consisting of:

providing a drug delivery solution consisting of microcapsules consisting of two to four internal, immiscible liquid phases enclosed within a polymer outer membrane having a melting temperature, and an energy absorbing component in an internal liquid phase in contact with the outer membrane, wherein the energy absorbing component is a magnetic particle and the energy is a magnetic field, wherein the energy absorbing component has a higher specific absorption rate for electromagnetic energy than the specific absorption rate of the polymer membrane, and a drug contained in at least one of the internal liquid phases, wherein the microcapsules contain a drug precursor in a first internal liquid phase and an activator of the drug precursor in a second internal liquid phase immiscible with the first internal liquid phase;

exposing the microcapsules to an energy source effective to mix the immiscible internal liquid phases and increase the kinetics of activation of the drug precursor prior to heating the magnetic particles;

administering the drug delivery solution to a subject; and

exposing the microcapsule to an energy source, effective to heat the energy absorbing component and to melt at least a portion of the polymer outer membrane and to release the drug.

90. (Withdrawn) A method of controlling the release of a drug consisting of:

providing a drug delivery solution consisting of microcapsules consisting of two to four internal, immiscible liquid phases enclosed within a polymer outer membrane having a melting temperature, and an energy absorbing component in an internal liquid phase in contact with the outer membrane, wherein the energy absorbing component is a magnetic particle and the energy is a magnetic field, wherein the energy absorbing component has a higher specific absorption rate for electromagnetic energy than the specific absorption rate of the polymer membrane, and a drug contained in at least one of the internal liquid phases;

administering the drug delivery solution to a subject; and

exposing the microcapsule to an energy source, effective to heat the energy absorbing component and to melt at least a portion of the polymer outer membrane and to release the drug.

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91. (Withdrawn) A method of controlling the release of a drug consisting of:

providing a drug delivery solution consisting of microcapsules consisting of two to four internal, immiscible liquid phases enclosed within a polymer outer membrane having a melting temperature, and an energy absorbing component in an internal liquid phase in contact with the outer membrane, wherein the energy absorbing component consists of a spheroid within the microcapsule, and wherein the energy is ultrasound, wherein the energy absorbing component has a higher specific absorption rate for ultrasound energy than the specific absorption rate of the polymer membrane, and a drug contained in at least one of the internal liquid phases;

administering the drug delivery solution to a subject; and

exposing the microcapsule to an energy source, effective to heat the energy absorbing component and to melt at least a portion of the polymer outer membrane and to release the drug.

92. (Withdrawn) A method of controlling the release of a drug consisting of:

providing a drug delivery solution consisting of microcapsules consisting of two to four internal, immiscible liquid phases enclosed within a polymer outer membrane having a melting temperature, and an energy absorbing component selected from the group consisting of amorphous carbon, graphite, aluminum powder, acetylene black, sodium amyl alcohol, sorbitan monooleate, 2% sorbitan monooleate/20 moles ethylene oxide, and paraffin oil, in an internal liquid phase in contact with the outer membrane, wherein the energy absorbing component has a higher specific absorption rate for electromagnetic, radiofrequency, microwave, or ultrasound energy than the specific absorption rate of the polymer membrane, and a drug contained in at least one of the internal phases, and wherein the microcapsules contain a radiocontrast medium;

wherein the microcapsules are administered to a subject intraarterially, intravenously, intraperitoneally, directly into a tissue, or directly into a tumor;

administering the drug delivery solution to a subject;

detecting said microcapsules at a target site by radiography, prior to heating the energy absorbing component; and

exposing the microcapsule to an energy source, effective to heat the energy absorbing

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component and to melt at least a portion of the polymer outer membrane and to release the drug.

93. (Previously Presented) The microcapsule of claim 1, wherein all mixing between the internal, immiscible liquid phases is substantially limited.

94. (Previously Presented) The microcapsule of claim 1, wherein the internal, immiscible liquid phases comprise multi-lamellar phases.

95. (New) A microcapsule consisting of:

- at plurality of internal, immiscible liquid phases;
- a flexible polymer outer membrane encapsulating the liquid phases, the polymer outer membrane having a melting temperature;

- one or more magnetic particles that are capable of becoming magnetized when a magnetic field is applied to said one or more magnetic particles, said one or more magnetic particles in one of the internal, immiscible liquid phases in contact with the polymer outer membrane, said one or more magnetic particles having a higher specific absorption rate for magnetic energy than the specific absorption rate of the polymer outer membrane, wherein the temperature of one or more magnetic particles is increased by absorbing said energy to melt at least a portion of the polymer outer membrane, wherein one or more of the magnetic particles comprise oxides of iron, nickel and zinc; and

- a coating surrounding at least one of the one or more magnetic particles, the coating selected from the group consisting of ceramics, metacrylates, alginates, dextran, polyacrylates, and polyvinyl pyrrolidone.

96. (New) A microcapsule consisting of:

- a plurality of internal, immiscible liquid phases;
- a flexible polymer outer membrane encapsulating the liquid phases, the polymer outer membrane having a melting temperature; and

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one or more magnetic particles that are capable of becoming magnetized when a magnetic field is applied to said one or more magnetic particles, said one or more magnetic particles in one of the internal, immiscible liquid phases in contact with the polymer outer membrane, said one or more magnetic particles having a higher specific absorption rate for magnetic energy than the specific absorption rate of the polymer outer membrane, wherein the temperature of one or more magnetic particles is increased by absorbing said energy to melt at least a portion of the polymer outer membrane, wherein one or more of the magnetic particles comprise about 66 wt % Fe_2O_3 , about 9 wt % NiO , and about 25 wt % ZnO .